



Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200

MAR 05 2018

SOLD

28/02 (001418)

D212-664-101
Job Sheet R172744



Part No: D212-664-101

Job Qty: 1 ea

Part Name: Fwd Crosstube - High



Part Weight: 0 lbs

Status: Scheduled

Priority: High

Job Created: 2/21/18

Job Tracking No:

Due Date: 2/27/18

Created By: Linda Lacelle

Type: Rework

Description:

Note: DWG REV E IPP Rev:E 04.02.16 Reformat KJ/DS IPP Rev:F 06-03-29 Remove Comments on Pick List JLM IPP
Rev:G 07-04-30 As per Rev C JLM IPP Rev:H 11.04.26 inspection strip ecn 11-549 EC verf by:DD IPP REV:I
14.05.27 AS PER ECN 14-570 DD VERF:JLM

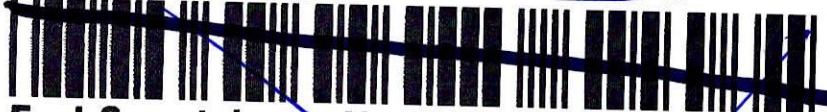
Ship Via:

Bill of Materials

see attached



Container No: **S044305**



Fwd Crosstube - High

PART NO: **D212-664-101**

Serial No/Batch: **B152042**

Revision:

Operation: **QC21-FG**

Change No: **CHG006**

Mfg Date: 02/21/18

Job No:



Container No: **S045170**



Part: **D212-664-101**

Job No: **R172744**

Serial No/Batch: **S045170**

Revision: **D212-664-141**

Inspector:

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D212-664-101 / R172744 / S045170 (B152042)

7/21/18 2:44 PM dart.lacelle.linda

Date: 02/26/18

DQA: _____ Date: _____

WORK ORDER NON-CONFORMANCE / UPDATE



QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date : _____	Step #: _____	QTY Effective : _____		MRB (QSI042) Approval	
Description Work Order Deviation		Disposition			
				Completed By	
				Lead hand / Supervisor Approval Verification	
				QC / QA Coordinator Approval	
Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐		FAULT CATEGORY Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Mislabeled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐			
OTHER : _____					

Job Routing

Op No	Operation	Qty	Start Date	Due Date	Standard		Workcenter/Supplier		Sign-off
					Setup hrs	Run Hrs	Workcenter / Supplier	Lead Time	
90	Start up Operation	1 Ea		2/26/18	0.00	0.00	Start Up Stores/Pkg-1		AB FEB 25 2018
140	Crosstubes	1 pcs		2/26/18	0.00	0.67	Crosstubes-1		AB FEB 25 2018
150	HandFXtube	1 pcs		2/26/18	0.00	0.98	HandFinish5		AB FEB 25 2018
160	QC	1 pcs		2/26/18	0.00	0.00	QC7-1		PD 18-02-26
165	QC	1 pcs		2/26/18	0.00	0.00	QC5		PD 18-02-26
170	Outsource	1 pcs		2/26/18			SKY002-VC		
180	Packaging	1 pcs		2/26/18	0.00	0.00	Packaging2		
190	QC	1 pcs		2/26/18	0.00	0.00	QC5		
200	SprayPaint	1 pcs		2/26/18	0.00	0.25	Spray Paint		DT 18-02-27
210	QC	1 pcs		2/26/18	0.00	0.00	QC14		
220	Crosstubes	1 pcs		2/27/18	0.00	1.69	Crosstubes-1		AB MAR 02 2018
230	QC	1 pcs		2/27/18	0.00	0.00	QC5		REB
240	Packaging	1 pcs		2/27/18	0.00	0.00	⬇ Packaging1-3		MA MAR 05 2018
250	QC	1 pcs		2/27/18	0.00	0.00	QC4		
255	DC	1 pcs		2/27/18	0.00	0.00	DC		
260	Packaging	1 pcs		2/27/18	0.00	0.00	Packaging3-1		SMP
270	QC21-FG	1 Ea		2/27/18	0.00	0.00	QC21		SMP 18/03/05

Part Op 140 - "1-Drill pilot holes in tube as per Dwg D212-664-141 using drill Jig DT8548 & DT8549 using drill table DT8577, set-Descriptions: up towers in hole #7 as per QSI 10 2-Ream hole to finish size in tube as per Dwg D212-664-141 using drill Jig DT8548 & DT8549. Check dimensions between holes, both sides on both cuffs, to ensure alignment with saddle holes. 3-Scribe part # and batch # using vibrating stylus as per Dwg D212-664-141 4-*** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE*** Deburr & Inspect for surface damage. Repair damage within limits as per Dwg D212-664-141"

150 - ***IMMEDIATELY AFTER GRINDING***

170 - *** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE*** Liquid Penetrant Inspection as per QSI 038 LPI as per ASTM 1417 Level 2 Attach copy of NDT results to work order

180 - Ensure copy of NDT results attached to work order.

190 - *** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE*** Inspect for damage & ensure results are as per Dwg D212-664-141

200 - *** WEAR LATEX GLOVES WHEN HANDLING CROSSTUBE*** 1-Prime inside & outside crosstube as per QSI 005 4.2 BATCH: _____ 2- After painting remove masking and apply matte clear coat per QSI005 4.2 3- MASK UNDERSIDE OF CROSSTUBE AS SHOWN ON DWG BEFORE PAINTING 4 -Paint Outside of Tube as per Dart QSI 005 4.2 Primer 138687/clear P.O. 38689/Paint 138741

210 - Then, Wrap in plastic bag to protect from scratches

220 - *****LAY DOWN CROSSTUBE ON TABLE AND PUT DT10302 PINS IN SADDLE HOLE FACING UP, USE HOLE IN TAPE MESURE TO PUT IN PINS FOR LOCATING CENTER OF CROSSTUBE. ***** 1- Abrade mating surfaces of support and crosstube with 180 grit sandpaper, clean the area with MEK or equivalent as per dwg 2- Install supports with Proseal 890 per D212-664-141 and QSI 015 A/R Proseal 890 Batch: 138784 EXP: 9/18 PROSEAL CURE TIME 72 HOURS: Start: 18-3-2 Finish: 18-3-5 3- Install clamps with rubber cushion (ENSURE CLAMPS ARE INSTALL ON TOP SIDE OF CROSSTUBE) using DT9565 as per Dwg D212-664-141. ***Torque all clamps to 80-100 IN-LBS.***

230 - ***RE-CHECK TORCQUE ON CLAMP AFTER PROSEAL HAS CURED FOR 72HOURS AS PER DWG.***

250 - ***VERIFY BY _____ BATCH # TO MATCH W/O _____

255 - Photocopy bluefile and create labels as per PPP D212-664-101 CHG006

260 - Identify and pack for shipping as per PPP D212-664-101 Location : FG094

Job BOM

Part / Item	Component Name	Quantity	Operation	Container
D212-664-101	Fwd Crosstube - High 8152043	1 Ea (1 ea)	90-Start up Operation	
D2893-1	Support	2 Ea (2 ea)	90-Start up Operation	
D3595-063-450	Rubber Cushion 0.63" Wide X 4.50" Long	4 Ea (4 ea)	90-Start up Operation	
AN6-35A	Bolt	4 Ea (4 ea)	240-Packaging	3027728
AN6-36A	Bolt	4 Ea (4 ea)	240-Packaging	5006328
D3428-1	Placard	1 Ea (1 ea)	240-Packaging	5160196
MS21042L6	Nut	6 Ea (6 ea)	240-Packaging	5016881
NAS1149D0663J	Washer	18 Ea (18 ea)	240-Packaging	5024481

QA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date :	Step #:	QTY Effective :		MRB (QSI042) Approval	
Description Work Order Deviation		Disposition			
				Completed By	
				Lead hand / Supervisor Approval Verification	
				QC / QA Coordinator Approval	
Root Cause		FAULT CATEGORY			
Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐
Design ☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐
Doc/Data ☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐
Equip/Tooling ☐	Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐
Handling/Pre ☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐
Material ☐	Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐
Internal Transport ☐	Poor Information ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐
Tribal Knowledge ☐	Rushing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐
LOA ☐	Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐
Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐
Past Expiry Date ☐	Manufacturing Process ☐				
Misidentified ☐	Past Due ☐	OTHER :			

Job Allocations				
Operation	Component Part	Required	Inventory	Allocated
90-Start up Operation	D212-664-101 <i>B152043</i>	①	1	0
	D2893-1	2	9	0
	D3595-063-450	4	57	0
	AN6-35A	4	79	0
240-Packaging	AN6-36A	4	97	0
	D3428-1	1	22	0
	MS21042L6	6	578	0
	NAS1149D0663J	18	1,842	0
	<i>MS21920-25 5024697(4)</i>			
Part Specifications				
Specifications could not be found.				

Plex 2/21/18 2:44 PM dart.lacelle.linda

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date :	Step #:	QTY Effective :		MRB (QSI042) Approval	
Description Work Order Deviation		Disposition			
				Completed By	
				Lead hand / Supervisor Approval Verification	
				QC / QA Coordinator Approval	
Root Cause		FAULT CATEGORY			
Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐	No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐	Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐	Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐	Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Misabeled ☐ Fit/Function ☐ Misaligned/off center ☐	Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐
OTHER : _____					

Linda Lacelle

From: Chris Provencal
Sent: Wednesday, February 21, 2018 4:52 PM
To: Linda Lacelle
Cc: Jesse White
Subject: RE: Required steps to re-stock D212-664-101 B152042

Linda,

Use this email for the 212 fwd. I added in the missing QC7 step

Chris

From: Chris Provencal
Sent: Wednesday, February 21, 2018 3:51 PM
To: 'L Lacelle' <llacelle@dartaero.com>
Cc: Jesse White <jwhite@dartaero.com>
Subject: Required steps to re-stock D212-664-101 B152042

Linda,

D212-664-101 B152042

1. Photocopy bluefile as per PPP D212-664-101 CHG 006
2. Pick Kit – Packaging
3. Remove supports and clamps. Clean Proseal off crosstube.
4. QC5 – Inspect entire crosstube for damage.
5. Repair damage per dwg D212-664-141 note 9.
6. Chemical conversion coat per QSI 005
7. QC 7 – Inspect chemical conversion coat
8. If repair was performed, NDT per QSI 038 4.1
9. QC 5 – Inspect for damage and ensure result are as per dwg D212-664-141
10. Prime inside & outside per QSI 005 4.2
 - Apply clear coat per QSI 005 4.2
 - Mask underside of crosstube as shown on dwg before painting
 - Paint outside of crosstube per QSI 005 4.2

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date :	Step #:	QTY Effective :		MRB (QSI042) Approval	
Description Work Order Deviation			Disposition		
			Completed By		
			Lead hand / Supervisor Approval Verification		
			QC / QA Coordinator Approval		
Root Cause		FAULT CATEGORY			
Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐	No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐	Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐	Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐	Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Misabeled ☐ Fit/Function ☐ Misaligned/off center ☐	Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐
OTHER :					

11. QC 14 – Inspect paint
12. Abrade mating surface of support and crosstube with 180-grit sandpaper
Install supports with proseal 890 per D212-664-141 and QSI 015. Cure time = 72 hours
Install clamps with rubber cushions using DT9565 per dwg D212-664-141
Torque clamps 80-100 in-lbs
13. QC 5 – Re-check torque on clamps after full cure
14. Pick Kit
15. QC 4 – 100% Inspect kit for completeness
16. Packaging – Identify for shipping per PPP D212-664-101
Location: FG094
17. QC 21

Sincerely,

Chris Provencal, P.Eng
Senior Engineer

DART AEROSPACE
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F 1 613 632-4443

1 800 556-4166
www.dartaerospace.com

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

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Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval		
Description Work Order Deviation				Disposition					
Root Cause		FAULT CATEGORY							
Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐				
Design ☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐				
Doc/Data ☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐				
Equip/Tooling ☐	Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐				
Handling/Pre ☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐				
Material ☐	Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐				
Internal Transport ☐	Poor Information ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐				
Tribal Knowledge ☐	Rushing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐				
LOA ☐	Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐				
Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐				
Past Expiry Date ☐	Manufacturing Process ☐	OTHER : _____							
Misidentified ☐	Past Due ☐								



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K6A 1K7
Canada

Tel (613) 632-5200

Container View (Active) - Master Unit Containers

Master Unit No	Container No	Part No	Part Name	From Container	Current Location	Quantity
001418	S047963	AN6-35A	Bolt	S027728	ST334	4
001418	S047961	AN6-36A	Bolt	S027729	ST333	4
001418	S047962	AN6-36A	Bolt	S027729	ST333	0
001418	S047964	D3428-1	Placard	F160130	ST034	1
001418	S047960	MS21042L6	Nut	S016881	ST303	6
001418	S047959	NAS1149D0663J	Washer	S024481	ST263	18

Note: Ad hoc query view of Part.dbo.Container where Container.Active = 1.

Plex 3/5/18 2:52 PM Dart.joly.jocelyne